

**2015-2016  
City of Newton, Massachusetts  
Snow and Ice Control Plan  
Department of Public Works**





City of Newton

Department of Public Works

1000 Commonwealth Avenue

Newton, MA 02459

December, 2015

The Department of Public Works is committed to providing benchmark-setting snow and ice control services for our community this winter. The Department of Public Works developed this Snow and Ice Control Manual to facilitate continual refinement to the City's snow and ice control program.

The public depends upon the use and availability of streets and highways during all types of weather related events. When the public transportation system (Public Streets, MBTA bus and train stops, etc.) is shut down or the capacity is reduced, there are typically severe impacts. Accidents due to snow and ice result in property damage, personal injury, and fatalities. The inconvenience of weather delays also contributes to driver attitudes and quality of life.

Included in the Manual are guidelines and instructions for carrying out the snow and ice control program for the City of Newton. For more detailed information concerning our snow and ice control program, please do not hesitate to contact us.

Sincerely,

Jim McGonagle  
Commissioner of Public Works

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## **Section I: Introduction & Scope of Program**

The City of Newton's snow and ice control plan is set forth as a guide for the Department of Public Works to provide efficient and timely snow and ice control services to the citizens and visitors of the City of Newton. The goals of the plan are to reduce life threatening and injury producing conditions, interruption to commerce, and damage to property. The plan is also committed to limiting the environmental impacts associated with snow and ice control. When there is snow, sleet, ice, or other winter weather events, the City of Newton's top priority is public safety. The Department of Public Works reviews and revises the snow and ice control plan annually as an ongoing effort to further improve the levels of service provided to the citizens and visitors of the City of Newton.

### **Purpose**

The snow and ice control plan is provided as a guide for addressing city streets during snow and ice situations.

- Provide uniform snow and ice removal throughout the City.
- Coordinate efforts through established personnel and resource commitments.
- Deliver effective services, under adverse conditions, that increase safety and reduce interruptions to the personal and economic lives of residents, visitors and businesses.
- Supply information to the public to promote understanding and cooperation.

## **Section II: Legal**

### **Officials in Charge**

Commissioner of Public Works: Jim McGonagle

Director of Operations: Shane Mark

Deputy Commissioner: Brian Zaniboni

Highway District Superintendents: Mike Jassett, Olimpiu Albu

Highway Assistant Superintendents: Mike MacKay, Richard Cincotta, Tony Dethomasis, Ron Crane

### **City of Newton Snow Ordinances**

The City of Newton's ordinances pertaining to snow and ice operations are intended to minimize safety hazards, reduce situations that impede operations associated with snow and ice control, and to provide for continued mobility for residents and visitors to traverse the City's streets and sidewalks. The following city ordinances are applicable to snow and ice operations and are enforced during the months of November through April.

#### Sec. 19-174. Parking of commercial vehicles and trailers.

\_(3) The penalty for violation of subsection (2) of this section shall be as follows: for the first offense, a warning; for the second offense, twenty-five dollars (\$25.00); and for each subsequent offense, the vehicle or trailer shall be towed to a convenient place and the owner of the vehicle or trailer towed away shall be liable for the towing and storage charges, if any, within the limits set forth in section 19-226. The owner of any vehicle removed or towed under the provisions of this section shall also be subject to the penalties provided in section 19-8 of this chapter.

(b) Other vehicles: From November 15th through April 15th, it shall be unlawful for any vehicle, other than one acting in an emergency, to be parked on any street, way, highway, road, parkway or private way dedicated or open to the use of the public for a period of time longer than one hour between the hours of 2:00 a.m. and 6:00 a.m. (Rev. Ords. 1973, § 13-144; Ord. No. S-87, 2-4-85; Ord. No. T-186, 11-18-91; Ord. No. Y-3, 3-19-07; Ord. No. Z-14, 11-5-07)

Sec. 19-225. Impeding of snow removal operations; authority of police; fees; liability for damage during removal or storage. No person shall stand or park or allow, permit or suffer any vehicle registered in his name or under his control to stand or park on any of the ways or parts thereof within the city in such a manner as to impede the removal or plowing of snow or ice, except vehicles parked in accordance with approved regulations, if any,

governing all-night parking. (Rev. Ords. 1973, § 13-188; Ord. No. 235, 10-3-77; Ord. No. S-8, 8-8-83; Ord. No. S-251, 6-1-87) Cross reference—Police, Ch. 24

**Sec. 26-8. Removal of snow and ice from sidewalks in certain districts.**

Every owner or occupant of a building or lot of land abutting upon a sidewalk which is within a business district, as defined by chapter 30, and every owner or occupant of a building situated in other than a business district as defined by such chapter and which is used for a purpose permitted in districts zoned for business but not permitted in districts zoned for single, private or general residences, whether or not such use is a nonconforming use under the provisions of such chapter, which building abuts upon a sidewalk, or stands upon a lot of land abutting upon a sidewalk, shall cause any snow to be removed from the sidewalk and any ice on the sidewalk to be removed, sanded or salted within twenty-four (24) hours after such snow has ceased to fall or such ice has come to be formed. The preceding provision shall apply to snow and ice which falls from buildings, other structures, trees or bushes as well as to that which falls from clouds. (Rev. Ords. 1973, § 19-8; Ord. No. T-127, 3-4-91; Ord. No. T-165, 8-12-91; Ord. No. U-3, 2-22-94) State law references—Removal of snow from sidewalks, G.L. c. 85, § 5; G.L. c. 40, § 21(2), (3), (4)

- ( ) First offense in calendar year .....\$100.00
- ( ) Second offense in calendar year.....\$200.00
- ( ) Third and subsequent offenses in calendar year.....\$300.00

**Sec. 26-8A. City snow clearing—Clearing of sidewalks used as school routes.**

The commissioner of public works shall clear snow from certain city sidewalks including portions of both school pedestrian routes and specific arterial and collector roadways, subject to appropriation and the availability of city personnel and equipment. The commissioner, after consultation with the superintendent of schools, chief of police and other appropriate city personnel, shall determine the total number of miles of city sidewalks to be cleared for the purposes of this ordinance based on the availability of personnel, vehicles and funding. Each year during the month of November, the commissioner shall publish a list of said sidewalk snow clearing routes. Said list shall include the street names and, where appropriate, the names of intersecting streets up to which the sidewalks will be cleared. The commissioner shall send a copy of said list to the chief of police and the superintendent of schools. (Ord. No. U-23, 7-11-94)

**Sec. 26-8B. Same—Snow clearing assistance.**

The commissioner shall annually prepare lists of persons available to provide snow clearing assistance either for a fee or on a volunteer basis. The lists shall be prepared in consultation with appropriate school and senior services department personnel, interested neighborhood organizations, houses of worship, parent-teacher associations, and other similar groups that indicate a willingness to participate in snow clearing assistance. Said lists shall be made available during the month of November each year. The list of persons available to provide snow clearing assistance for a fee shall be available upon request to any Newton resident. Low income elderly or low income handicapped persons requesting volunteer snow clearing assistance shall be referred to the senior services department to be matched with available volunteers. For the purposes of this section, "elderly" shall be defined as a person sixty (60) years of age or older, "handicapped person" shall be defined as a person with a physical condition which substantially limits the ability to engage in physical snow clearance activities and "low income" shall be defined in accordance with guidelines established by the United States Department of Housing and Urban Development for the Community Development Block Grant Program. (Ord. No. U-23, 7-11-94; Ord. No. 175, 05-26-05)

**Sec. 26-8C. Same—Snow clearance standards.**

The commissioner of public works shall endeavor to minimize the blocking of sidewalks and intersections with plowed snow so as not to hinder pedestrian passage. The commissioner shall remove plowed snow from sidewalks and intersections that block pedestrian access, to the extent that such removal is feasible, as determined by the commissioner, and subject to appropriation. (Ord. No. U-23, 7-11-94)

**Sec. 26-8D. Trial program for removal of snow and ice from sidewalks.**

In order to allow for safe pedestrian and wheelchair passage, every owner or occupant of a building or lot of land abutting upon a paved sidewalk or any person having charge of such property shall use reasonable efforts to remove snow and ice from the sidewalk and handicap access ramps, and shall use reasonable efforts to treat said sidewalk and ramps to allow for a safe passageway of approximately thirty-six (36) inches in width, provided that where such sidewalk is less than thirty-six (36) inches in width the passageway shall encompass its entire width

and handicap access ramps. Snow and ice shall be removed, and sidewalks and ramps shall be treated, within thirty (30) hours after such snow has ceased to fall or such ice has formed. This section shall apply to snow and ice which falls from buildings, other structures, trees or bushes, as well as to that which falls from clouds. This section shall not apply to owners or occupants of a building or lot covered by Section 26-8. The mayor or his designee is authorized to coordinate volunteer snow clearing assistance or to grant an exemption, renewable annually, for citizens who upon written petition demonstrate hardship due to a combination of health and financial duress. The provisions of this section shall take effect on November 1, 2011 and shall expire on November 1, 2015 unless terminated earlier or renewed or modified by the board of aldermen. During this trial period, enforcement shall be limited to issuance of notices of non-compliance for violations of any provision of this section. (Ord. No. Z-83, 3-21-11, Ord. No. A-8, 01-22-13; Ord. No. A-49, 12-01-14)

Sec. 26-9. Putting snow and ice upon streets, sidewalks and bridges.

(a) No person shall block, obstruct or otherwise hinder or impair pedestrian or vehicular traffic on the public ways of the city by placing snow or ice or permitting or causing snow or ice to be placed upon a street, sidewalk or bridge, except that snow or ice removed from a sidewalk may be piled in the adjoining gutter or on the loam border between the sidewalk and the street. This section shall not apply to municipal snow removal operations.

(b) Without limiting the applicability of the foregoing paragraph (a), the owner or occupant of property whose driveway or sidewalk is cleared of snow shall be responsible for promptly removing snow placed on the public way (street, sidewalk and/or bridge) adjoining the owner's property as a result of clearing snow from the driveway or sidewalk of the owner. For purposes of this paragraph, "clearing snow" shall include, but is not limited to, plowing, shoveling, sweeping and any other similar means of removing snow from the driveway or sidewalk. This section shall not apply to municipal snow removal operations. (Rev. Ords. 1973, § 19-9; Ord. No. T-166, 8-12-91;

First offense in calendar year .....\$100.00

Second offense in calendar year .....\$200.00

Third offense and subsequent offenses in calendar year .....\$300.00

( ) Causing or permitting snow or ice to be placed upon a public way (street, sidewalk or bridge)

First offense in calendar year .....\$100.00

Second offense in calendar year .....\$200.00

Third offense and subsequent offenses in calendar year .....\$300.00

Sec. 26-14. Obstructing sidewalks generally. No person shall place or cause or permit to be placed upon any sidewalk any snow or ice, lumber, iron, coal, trunk, bale, box, crate, cask, package, article or thing whatsoever, so as to obstruct free passage for travelers. (Rev. Ords. 1973, § 19-14)

Sec. 26-15. Obstructing free passage on sidewalks. No person shall willfully or negligently obstruct the free passage of foot travelers upon a sidewalk in any street of the city, or willfully or negligently congregate with others upon a sidewalk or in a street or other public place of the city and obstruct the free passage of foot travelers or vehicles that are rightfully and properly passing thereon. (Rev. Ords. 1973, § 19-15)

Sec. 26-16. Vehicles on sidewalks; permit fee; bond.

(a) No person shall park a vehicle upon, obstruct, damage or destroy any sidewalk, berm or curbing.

(b) No person shall drive, wheel or draw any motor vehicle upon or across any sidewalk, berm or curbing except in accordance with a permit issued by the commissioner of public works as provided in subsection (c) or except as follows:

(1) a motor vehicle which is registered or otherwise authorized to be driven on the public streets may be driven across that portion of sidewalk which constitutes the driveway entrance or apron; or

(2) as may be required for municipal snow clearance operations.

(c) The commissioner of public works may grant a permit, upon payment of the fee specified in subsection (d), to any person authorizing the crossing or obstruction of a sidewalk, berm or curbing by vehicles where the same may be necessary to the performance of any work on any land, building or structure abutting thereon. All damage to any sidewalk, berm or curbing caused thereby shall be repaired and restored by the commissioner of public works to a condition satisfactory to him at the expense of the holder of such permit, and the commissioner of public works may require, as a condition of the issuance of any such permit, a bond in such amount and in such form and with such surety as may be satisfactory to him for the performance of the requirements thereof and of this section.

(d) The fee for a sidewalk crossing permit shall be as follows:

Application and inspection fee ..... \$50.00

(e) Within three business days of the department's receipt of an application for a permit under this section, the commissioner of public works or the commissioner's designee shall inspect the site and make a determination whether to grant such a permit. (Rev. Ords. 1973, § 19-16; Ord. No. 90, 10-6-75; Ord. No. T-161, 7-8-91; Ord. No. V-2, 1-3-95; Ord. No. X-55, 6-16-03)

Sec. 26-17. Obstructing streets, sidewalks with staging for building, scaffolding, dumpsters, brick, timber, etc. No person shall erect any staging for building, or scaffolding, or place or deposit a dumpster in connection with construction, or any stones, bricks, timber or other building materials in any street or on any sidewalk without first

### **Section III Street Jurisdiction and Responsibility:**

#### **Responsibility**

The Department of Public Works has the primary responsibility for execution of the snow and ice control plan and is responsible for more than 320 miles of roadways, 54 plus miles of sidewalks, approximately 43 City owned buildings (including 21 school sites), 15 city-owned public parking lots, streets and sidewalks over 22 bridges, areas adjacent to 70 plus school bus stops, 35 plus MBTA bus stops, 10 T-Stops, and 3 Commuter rail stops. The City encompasses 18.3 square miles and is comprised of 13 distinct villages, eight separate wards, and has a population of 87,000 plus. Bordering communities include: Brookline, Brighton, Watertown, Waltham, Weston, Wellesley, Needham and West Roxbury. Newton also has east-west and north-south highway infrastructure with Routes 9, 90 and 128/95 running through the city.

#### **Snow Routes**

##### *Street Routing*

Snow routes for arterial streets, collector routes, and residential local-through routes are evaluated and assigned annually. Maps containing arterial, collector and residential local-through routes identify the priority of each street within the City. The snow route priorities are based on traffic patterns, traffic speeds, traffic volumes, transportation nodes, schools or other public institutions, village squares, and the steepness of the roadways. The city has established 10 snow zones with a total of 94 routes distributed within the zones. City staff performs snow and ice control in two of the snow zones, snow and ice control within the remaining eight zones is performed by private contractors which are hired annually by the City of Newton. New annexations, street additions and changes in traffic patterns are considered when revisions are made. The Department of Public works factors in "hot spots" (areas prone to snow drifting, ice formulations, etc.) and other problem locations during the route assessment process.

##### *Route Prioritization*

The order of operation for snow and ice control is based on traffic volume and impact on public safety. Priority attention is given to the arterials, collectors, and streets with steep inclines, hills, and bridges. The level of service (LOS) for all City streets is based upon guidance provided by the National Cooperative Highway Research Report 526. The level of service is **Pavement Snow and Ice Condition 2, Clear & Wet**: Bare/wet pavement surface is the general condition. There may be occasional areas with snow or ice accumulations resulting from cold spots, frozen melt-water, etc. Prudent speed reduction and general minor delays are associated with traversing those areas. Prioritization for the City of Newton Streets follows:

#### **Priority 1 Arterial and Collector Streets:**

Arterials: High volume, high speed streets that provide for through traffic movement citywide and provide access to the freeway system, alternate nodes of transportation, etc. Also included in this category are steep inclines and roadways with bridges.

Collectors: Medium volume, lower speed streets that provide for traffic movement between arterials and residential local-through streets.

**Priority II Residential Local-Through Streets:**

Residential Local-Through: Provide access to the abutting property. Snow and Ice Control on the priority II streets may occur simultaneously with and after clearing of arterial and collector streets.

**Priority III Additional Routes:**

Additional Routes: Streets that do not fall within the priority I or II classifications for snow and ice control which are treated on an as-needed basis. These may include areas such as streets with bridges and overpasses that are prone to freezing or slick spots.

**Section IV: Snow & Ice Control Operations**

This Manual is in effect during winter operations and at times when weather conditions cause accumulation of frost, sleet, ice, snow or other occurrences on the streets and public parking lots of the City of Newton. Execution of the City of Newton's snow and ice plan is the primary responsibility of the Commissioner of Public Works.

**Snow and Ice Control Implementation**

Every winter storm is unique and the strategies used to perform snow and ice control are determined by several factors pertaining to the storm. The factors to consider when performing snow and ice control are: the time of day the storm begins, air temperatures, pavement temperatures, predicted rates per hour of snowfall amounts, predicted duration of the storm, projected temperatures following the storm, and predicted weather after the initial storm. The Commissioner of Public Works or his/her designee is responsible for implementing winter operations. Snow and ice control managers on duty will employ the National Weather Service, computerized weather monitoring systems, information from the City snow chasers and local weather forecasters to determine the level of response for implementation of winter operations.

*Snow Chasers*

Personnel from the Department of Public Works who are not routinely involved with operating snow equipment are utilized as snow chasers for winter operations. These individuals are responsible for monitoring and reporting roadway conditions to the Snow Control Center 24 hours a day during snow/ice events. Further information on the City's Snow Chasers can be found in Appendix A. (See Appendix A)

*Dispatchers*

Personnel from the Department of Public Works who are not routinely involved with operating snow equipment are utilized as dispatchers for winter operations. These individuals are responsible for the dispatching, monitoring, and communication of snow routes to the Snow Operations Control Center 24 hours a day during snow/ice events. Further information regarding dispatchers can be found in Appendix B. (See Appendix B)



### *Snow Control Center (SCC)*

When snow operations are mobilized, the Snow Control Center (SCC) will also be mobilized. This center is the hub of winter operations during snow events. The SCC operates from the Emergency Operations Center (EOC). All information regarding the winter operation is relayed to the SCC. This information is processed and released from the SCC at appropriate times. Once the SCC is mobilized, it remains in operation for the duration of the event as determined by personnel in charge. The primary purpose of the SCC is to perform the following core functions:

- Collect and maintain current information for ongoing snow and ice control operations
- Facilitate coordination and communication of the existing snow and ice control operation with internal and external stakeholders.
- Resource needs identification, requesting, and tracking

Further information on the SCC can be found in Appendix C. (Appendix C)

### *Command and Control*

The Commissioner of Public Works is responsible for overall supervision of the snow and ice control operation. The Commissioner will control the resources pertaining to the operation including staff from other city departments such as Parks & Recreation. He or she will coordinate with the police department, school department, and the Mayor's office all initial activities regarding public safety and snow and ice control plan status. He or she will also determine:

- The number of personnel and equipment needed
- The time snow and ice control operations will commence
- Snow contractors: time and number needed based on severity of predicted storm

The Director of Operations is responsible for the overall planning, coordination, implementation, and communication of the snow and ice control operation citywide including:

- Making determinations on the salting, plowing, and hauling operations
- Recommending courses of action to the Commissioner of Public Works
- Ongoing coordination with other city departments such as Newton Police Department, Newton Fire Department, Newton Public Schools, Parks & Recreation, and the Mayor's Office

The Director of Highway Operations is responsible for:

- Regular monitoring of the weather and roadway conditions throughout the City prior to, during, and after snow and ice storms
- Directing the supervision of the plowing, salting, and hauling operations
- Communicating with the Newton Police Department regarding roadway safety conditions, and making recommendations regarding the operation to the Director of Operations
- Coordinating with the Superintendent of Parks & Recreation regarding upcoming storms, needed resources, and courses of action for ongoing operations

Superintendents and Assistant Superintendents are responsible for:

- Supervising the resources and employees involved in the plowing, salting, and hauling operations
- Routine monitoring of plowed and salted streets for conformance to the snow plan and required levels of service through the utilization of the snow chasers and GPS system.
- Communicating the status of the operation and recommended plans to the Director of Highway Operations
- Ensuring that all routes, roads, sidewalks, parking lots, municipal buildings, schools, modes of transportation, etc. are serviced in accord with the designated level of service called for within the snow plan

Snow Control Center Staff will:

- Regularly update the weather reports and communicate significant changes
- Monitor and update the snow plow tracking system
- Respond to and record all snow and ice control related inquiries

- Record the progress of the snow and ice control operation and communicate to the Director of Operations and the Commissioner of Public Works

The Commissioner of Parks and Recreation will perform the following duties during snow and ice control:

- Coordinate and control emergency tree work
- Provide requested resources to the Department of Public Works

#### *Operational Readiness Condition Levels*

There are five operational readiness levels used during the winter season. The readiness levels are based upon several dynamics but not limited to the following factors: equipment status, available employees, weather forecasts, predicted temperatures, day of the week, holidays, and special events. The levels of operation and manpower/equipment requirements for each are used as general guidelines for snow and ice control operations. The specific number of operators and equipment may be added to or phased down at the discretion of the Commissioner of Public Works or the Director of Operations contingent upon the weather conditions and the perceived need for public safety. The operational readiness condition levels are:

- Readiness Condition I (One truck): Established when there is no immediate need or anticipated need for plowing and/or salting operations within the following 12-24 hours (Outside of normal business hours). At this level the Department of Public Works will respond to emergency calls for snow and ice control such as ice dams, slick spots, etc. There will be one vehicle with salt spreading capabilities on standby to respond if needed. Additionally, there will be a minimum of four vehicles that are fueled, loaded with salt, stored in the garage, and ready for additional response.
- Readiness Condition II (Two trucks): Established when there is no immediate need for plowing and/or salting operations but there is an anticipated need for plowing and/or salting operations to occur on a limited basis over the next 12-24 hours (Outside of normal business hours). At this level the Department of Public Works will respond to emergency calls for snow and ice control such as ice dams, slick spots, etc. There will be two vehicles with salt spreading capabilities on standby to respond if needed. Additionally, there will be a minimum of four vehicles that are fueled, loaded with salt, stored in the garage, and ready for additional response.
- Readiness Condition III (Four to Six trucks): Established when there is a limited salting operation anticipated or when the forecasted weather may require a larger plowing/salting operation. There will be four to six vehicles with salt spreading capabilities on standby to respond if needed. Additionally, there will be a minimum of four vehicles that are fueled, loaded with salt, stored in the garage, and ready for additional response.
- Readiness Condition IV (Eight to Twelve trucks): Established when there is an immediate need for a salting operation on all arterials, hills, bridges, and collectors. The forecasted weather requires a larger plowing/salting operation. There will be four to six vehicles with salt spreading capabilities in each yard. Additionally, there will be a minimum of four vehicles in each yard that are fueled, loaded with salt, stored in the garage, and ready for additional response.
- Readiness Condition V (All available trucks): Established when there is an immediate need for a plowing /salting operation on all city streets. The forecasted weather requires a large plowing/salting operation. All available vehicles for both yards with salt spreading capabilities.

### *Street Plowing Operations*

The city is divided into 10 snow zones with a total of 94 routes distributed within the zones. City staff performs snow and ice control in two of the snow zones, snow and ice control within the remaining eight zones is performed by private contractors which are hired annually by the City of Newton. Upon the accumulation of approximately 3” of snow and dependent upon type, density, conditions, storm prediction, etc. plowing operations will commence. Contact will be made in advance of the storm when storm predictions require the use of private contractors.

The following guidelines are to be used during snow and ice control operations:

- Plow streets from the center out towards the berm, curb, or edge of pavement.
- Snow and ice on city streets will be pushed back and widened as close to the berm, curb, or edge of pavement as possible.
- Intersections will be plowed curb to curb and widened.
- One way streets shall be plowed according to the directives above. Plowing against traffic flow patterns is not authorized at any time unless authorized by emergency officials.
- Snow and ice on dead end streets should not be deposited at the end of the street. The snow and ice shall be “pulled back” as far as necessary for a plow vehicle to turn around and push the snow away from the end of the street

The following guidelines are to be used immediately after snow and ice control operations:

- Continued clean up and push back on all streets and sidewalks focused primarily on the village centers, schools, transportation nodes, school bus stops, etc.
- Clearing of designated school bus stops
- Clearing of school crossing guard locations
- Clearing of designated transit bus stops
- Clearing of Village Centers and Squares
- Clearing of catch basins and fire hydrants
- Clearing of sidewalks adjacent to municipal lots
- Clearing of municipal lots

### *Sidewalk Plowing Operations*

Sidewalk plowing runs in conjunction with street plowing. Operations on the designated City sidewalks will commence upon the snow and ice control’s plowing operation. The minimum width for sidewalk plow routes is 36”. The designated City sidewalk routes are divided into six separate routes distributed within the City snow zones. City staff performs snow and ice control on 50 plus miles of designated city sidewalk routes including 1,400 plus curb cuts contained within those routes. Private contractors may be used to supplement City forces. Further information on the designated sidewalk routes can be found in Appendix D. (See Appendix D)

### *Hauling Operations*

Snow hauling occurs at key intersections, village centers, business centers, safe route to school areas, sidewalks abutting city owned property, and transportation nodes upon the Commissioner of Public Works’ determination that accumulated snow and ice impedes traffic and pedestrian access. There are many factors that determine when snow hauling is required. Factors include but are not limited to: snow accumulation, snow depth from prior storms, predicted snowfall accumulation amounts, and temperatures following the storm.

#### *Snow Hauling Operations Storage Sites*

Upon commencement of snow hauling the snow and ice will be taken to several snow storage sites throughout the city. Snow Hauling will utilize the following locations in numerical sequence as snow storage sites:

1. Elliot Street Maintenance Yard (90 Elliot Street)
2. Rumford Avenue DPW Yard (115 Rumford Avenue)
3. Forte Park Vehicle Lot (233 California Street) **\*Parks and Recreation site\***
4. Auburndale Park Vehicle Lot (West Pine Street)
5. Upper Falls Playground Vehicle Lot (Chestnut Street)
6. Cold Spring Park Vehicle Lot (Dunklee Street)

Further information on the City's snow hauling can be found in Appendix E. (See Appendix E)

### *Snow and Ice Control Equipment*

All snow and ice control equipment is inspected annually. Each piece of equipment undergoes a comprehensive assessment for safety, operating condition, cleanliness, overall appearance and communication capabilities. Various vendors complete mechanical checks on City equipment, under the supervision of Fleet Management. An updated list of equipment available from other City departments is compiled and maintained annually. This equipment may be used during conditions of a severe and extended snow and ice event. Further information on the City's snow and ice control equipment can be found in Appendix F. (See Appendix F)

### *Training*

Extensive training is conducted each fall for personnel engaged in the snow and ice control program. Training provides hands-on experience and an overview of systems, policies and procedures. The program provides employees the opportunity to re-acquaint themselves with the vehicles and equipment used in snow and ice removal operations. Annual training topics include:

- Snow training – classroom and hands-on training
- Dry runs of all routes by regular personnel at assigned locations
- Snow chaser training
- Dispatcher training
- Contractor training
- Inspection training peer-to-peer training – hands-on for non-experienced personnel, division and non-division.
- Sensible salting plan
- Weather Forecasting

### **Facilities and Materials**

The hub of winter operations is located at 74 Elliot Street known as the Elliot Street Garage. There is one additional facility located at 90 Crafts Street which is known as the Crafts Street Garage. Both locations are supplied with salt and liquid magnesium chloride. The salt barns are restocked at the beginning of the snow season in anticipation for the beginning of snow/ice events. Contracts are in place for additional materials as needed, and the materials are replenished after each winter storm. Further information on the City's snow and ice facilities and storage capacities can be found in Appendix G. (See Appendix G)

### *Material Applications*

The type of material used to provide chemical melting of snow or ice depends on the type of treatment being performed. The factors to consider when determining the types and amounts of materials applied are: air temperatures, pavement temperatures, rate per hour of snowfall, projected temperatures following the storm, and predicted weather after the initial storm. Salt and liquid magnesium chlorides are available at all field operation facilities. These materials are used for the initial clearing of public roadways. Rock salt or rock salt pre-wetted with liquid magnesium chloride are the primary chemicals used during snow and ice control operations. Further information on material types and application rates can be found in Appendix H. (See Appendix H)

### *Sensible Salting*

Effective winter storm maintenance has a direct impact on safety of the roadway users and on the personnel performing the maintenance. Since the use of salt in high concentrations can have a negative impact to the environment and to the streams, lakes, and rivers within Newton the development of Best Management Practices that minimize the use of road salt, will be adhered to during winter operations. Adherence to these guidelines helps reduce the environmental impacts associated with snow and ice control. The following proactive measures will be used as part of the sensible salting plan:

- winter materials will be stored inside salt barns
- pre-determined snow storage sites for hauling operations
- controlled maximum salt application rates at 500 pounds per lane mile
- salt spreader calibration
- pre-wetting solid salt as it is applied to the roadways
- staff training conducted annually and post storm
- continued monitoring of applied salt during and after snow storms

Further information on sensible salting can be found in Appendix I. (See Appendix I)

## **Section V: Inclement Weather and Emergency Information**

During the course of the winter, a variety of inclement weather conditions occur which can impact the safe and orderly flow of traffic. The following is a general description from the National Oceanic Atmospheric Administration (NOAA) of four categories of inclement winter weather. Information on snow and winter terminology is below:

- **Light Inclement Winter Weather:** Pavement temperature is at 32 degrees or above with light rain or snow creating icy bridge decks or light ice on roadways. Accumulation of 2" or less.
- **Medium Winter Storm:** Snowfall with temperatures near or just below freezing with no anticipated drop in temperature; little to no drifting of snow. Accumulation between 2" – 4".
- **Heavy Winter Storm:** Snowfall with temperatures at freezing and dropping; moderate drifting of snow. Accumulation between 4" to 6"
- **Major Winter Storm:** Significant freezing rain or snow with temperatures falling and winds creating major drifts resulting in blocked roadways. Accumulation of 6" or more.

### *Winter Weather Terminology*

- **Freezing Rain Advisory:** Freezing rain/drizzle is light and ice accumulations are less than 1/4 inch.
- **Winter Weather Advisory:** This is an all-encompassing term that replaces the old snow advisories, sleet advisories, blowing/drifting snow advisories, and freezing rain/drizzle advisories. It is used when a mixture of precipitation is expected such as snow, sleet and freezing rain or freezing drizzle, but will not reach warning criteria. Used when sleet or snowfall amounts are expected to be less than 3 inches in a 12 hour period, or freezing rain/drizzle is light and ice accumulations are less than 1/4 inch.
- **Special Weather Statement:** Used to highlight weather events that can have a high impact but fall below advisory or warning criteria. Used when wind-driven snow intermittently reduces visibility to 1/4 mile or less. Travel may be hampered. Strong winds create blowing snow by picking up old or new snow.
- **Winter Storm Watch:** Issued when conditions are favorable for the development of hazardous weather elements, such as heavy snow or sleet, blizzard conditions, significant accumulations of freezing rain or drizzle, or any combination thereof which meet or exceed local Winter Storm Warning Criteria. Watches are usually issued 12 to 48 hours in advance of a Winter Storm event.
- **Winter Storm Warning:** Issued when hazardous winter weather conditions are imminent or very likely, including any occurrence or combination of heavy snow, wind-driven snow, sleet, and/or freezing rain/drizzle. Winter Storm Warnings are issued for expected sleet and snowfall amounts of 4 or 6 inches or more in 12 hours, or 6 inches or 8 inches or more in 24 hours. It is also used when damaging ice

accumulations are expected during freezing rain situations; walking and driving becomes extremely dangerous, and ice accumulations are usually 1/4 inch or greater. Finally, it is also issued with sustained winds or frequent gusts of 35 miles per hour or greater and considerable falling and/or blowing snow reducing visibility to less than 1/4 mile. These conditions are expected to last at least three hours. Usually issued 12 to 24 hours before the event is expected to begin.

- **Blizzard Warning:** Issued for sustained or gusty winds of 35 mph or more, and falling or blowing snow creating visibilities at or below 1/4 mile; these conditions should persist for at least three hours.
- **Snow Flurries:** Light snow falling for short durations. No accumulation or light dusting is all that is expected.
- **Snow Showers:** Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Snow Squalls:** Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes region and may persist for many hours and produce six inches or more of snow in 12 hours or less.
- **Blowing Snow:** Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind in quantities that horizontal visibilities are reduced to less than seven miles.
- **Sleet:** Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.
- **Freezing Rain:** Rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.
- **Wind Chill Warning:** Issued when wind chill temperatures are expected to be hazardous to life within several minutes of exposure. Issued when wind chill temperatures are expected to be minus 25 degrees Fahrenheit.
- **Wind Chill Advisory:** Issued when wind chill temperatures are expected to be a significant inconvenience to life with prolonged exposure, and, if caution is not exercised, could lead to hazardous exposure. Wind Chill temperatures are expected to be in the range of minus 10 degrees Fahrenheit to less than or equal to minus 24 degrees Fahrenheit.

## Radar Information

National Weather Service radar imaging as well as weather forecasting and radar imaging from The Weather Channel and NOAA is available to operations staff. Additionally, all DPW locations have access to the Precision Weather website which can be accessed at <http://www.snowandice.com/> and Schneider Electric weather website at [dtn.weather.com](http://dtn.weather.com)

## Snow Emergencies

A snow emergency may be declared by the City of Newton Chief of Police. The decision to institute a snow emergency will be determined based upon several factors such as: the time of day the storm ends, air temperatures, pavement temperatures, actual snowfall amounts, projected temperatures following the storm, and predicted weather after the initial storm. A snow emergency prompts special parking restrictions to be in effect to allow for thorough clearing of arterial, collector, and local-through streets to ease traffic flow. Due to the difficulties encountered plowing streets where vehicles are parked alongside the curb, a parking ban will be put into effect and local law-enforcement officials will enforce these parking restrictions.

## **Section VI: Public Information**

The Department of Public Works and the City's Director of Community Engagement will coordinate the response to all media requests for on-site audio or video footage, and will work together to answer any inquiries received by media outlets related to snow response. In addition, the Director of Community Engagement will work with the Department of Public Works to continuously and proactively update residents via the media, City website, social media, and other outlets. The Director of Community Engagement works in conjunction with the Director of Operations to obtain the most current and concise information available for disbursement to the media and City of Newton Administration. The Department of Public Works will also ensure that timely information is provided to staff working at the 311 Customer Service Center, so that they may properly address any questions or concerns of residents who contact the city.

### **Disclaimer**

The plan set forth in this manual may be affected by at least one or more of the following events which could delay or alter snow and ice control by the City:

- Weather so severe as to cause work to be stopped for the safety of all personnel
- Unforeseen conditions and emergencies
- Significant medical related emergencies
- Vehicles disabled in deep snow
- Equipment breakdown

## **Appendix A: Snow Chaser Roles**

### **Role of the Snow Chasers**

Snow Chasers are a unique group of individuals used by the city of Newton in its snow and ice control program. Snow Chasers are responsible for monitoring and reporting roadway conditions to the Snow Control Center and its two area maintenance facilities 24-hours a day during a snow event.

### **Operations**

The Snow Chaser program is made up of 10-15 employees during snow events. The Snow Chasers meet at specified locations and times with the private contractors during snow and ice control events. Notes and information are exchanged and relayed to the Snow Control Center.

### **Duties**

- The Snow Chaser's duty is to report, with confidence, weather and pavement conditions; make recommendations on material selection and equipment; assist crews in proper procedures; and investigate complaints.
- Core Chasers are responsible for helping in the training and development of the City's employees that are required or volunteer as Snow and Ice Control Equipment Operators.
  - Employees from various divisions participate in a Winter Snow Training program conducted just prior to the winter snow season.
- To be constantly aware of the changing conditions of the snow event and layout of the City.
  - Core Snow Chasers monitor the City's roadways, and therefore have intimate knowledge of the City's roadways. Their knowledge of the City and experience in fighting snow can lead to creating more efficient and effective snow fighting techniques.
- Upon completion of all plowing operations the snow chasers inspect all roadways in their assigned areas, verify route completion, and are responsible for releasing all contractors and plow operators.

### **Assignment**

Snow Chasers are dispatched under the authority of the Highway Operations Director at a specific time based on the forecast of a storm. Chasers report straight to their assigned geographical area and begin reporting updates of road conditions to the Snow Control Center.

Snow Chasers have become very instrumental in the storm fighting by allowing the City to have first-hand monitoring and instant feedback on tactics being employed. Snow Chasers are individuals utilized as an important tool in City's arsenal in the control of snow and ice in the city of Newton.



## **Appendix B: Dispatcher Roles**

### **Role of the Dispatcher**

Dispatchers are a unique group of individuals utilized by the city of Newton in its snow and ice control program. The Dispatcher is responsible for dispatching, monitoring, tracking and reporting the status of the plowing operations to the snow plow operators and to the Snow Control Center.

### **Duties**

- Ensure the correct shift dispatch sheets are being used.
- Record the correct information and assigning the routes in the proper order.
- Re-check the dispatcher sheets to be sure that the work program for the shift is being followed.
- Record the correct information on auger and spinner settings, and the materials to be used by the drivers.
- Complete the information needed for the Winter Storm Report by the timing deadline.
- Ensure that all work program data is accurate and is passed on and communicated to the Director of Operations, including materials on hand, vehicle availability, work plan and where the shift left off.
- The Dispatcher's duty is to report, with confidence, the current plowing operational status, dispatch routes, monitor truck locations, and routes completed.
- To be constantly aware of the changing conditions of the snow event, current plowing conditions and overall event status.

Dispatchers have become very instrumental in the storm fighting by allowing the City to have first-hand monitoring, tracking, and current operational status. Dispatchers are individuals utilized as an important tool in the City's arsenal in the control of snow and ice in the City of Newton.

## **Appendix C: Snow Control Center**

### **Purpose**

The Storm Control Center is the hub of winter operations during winter events. The SCC operates from the Emergency Operations Center (EOC). All information regarding the winter operation is relayed to the SCC. This information is processed and released from the SCC at appropriate times. Once the SCC is mobilized, it remains in operation for the duration of the event as determined by personnel in charge. The primary purpose of the SCC is to perform three core functions:

1. Collect and maintain current up-to-date information for ongoing snow and ice control operations
2. Facilitate coordination and communication of the existing snow and ice control operation with internal and external stakeholders.
3. Resource needs identification, requesting, and tracking

### **Concept of Operations**

The Commissioner of Public Works initiates the SCC activation when significant winter events that have potential to cause major damage to public and private property, significantly hinder public accessibility, and require a broad response by City forces are occurring or are imminent. Upon activation, the Department of Public Works, and the Fire Department work together in providing the needed resources and staffing for the SCC.

Personnel manning the SCC establish communication with the Snow Chasers and Public Works management staff during the storm in order to have the most up-to-date information possible regarding winter operations. Information such as the GPS plow tracking system, route progression, equipment status, and additional items of interest is collected and maintained by the SCC.

### **Staffing**

The SCC Center will be staffed 24/7 during winter events and usually requires the following:

- 1 Supervisor
- 2 Customer support representatives
- 1 Administrative assistant
- 1 Information technology specialist (if needed)

## **Appendix D: Sidewalk Plowing**

### **Sidewalk Plowing**

Sidewalk plowing operations run in conjunction with the street vehicle plowing operation. Snow and ice control operations on the designated City's sidewalks will commence upon the snow and ice control's plowing operation. The minimal acceptable width for sidewalk plow routes is 36". The designated City's sidewalk routes are divided into six separate routes distributed within the City's snow zones. City staff performs snow and ice control on 50 plus miles of City designated sidewalk routes including 1,400 plus curb cuts contained within those routes. Private contractors which are hired annually by the City of Newton may be used to supplement City forces. Included in the sidewalk plowing routes is the clearing of snow from sidewalks along twenty two (22) bridges including corners; snow from sidewalks adjacent to approximately 49 MBTA bus stops; snow from sidewalks at approximately 41 public school bus stops; and snow from 18 miscellaneous areas including but not limited to traffic islands, pathways, curb extensions, parking kiosks, etc.

#### *Detailed Sidewalk Plowing Locations*

##### **Bridges (22)**

##### **Sidewalks & Corners**

##### Auburndale

Central Street over Massachusetts Turnpike

Washington Street over Green Line

Grove Street over Green Line

##### Newton Centre

Parker Street over Boylston Street (State Route 9)

Centre Street over Green Line (including the walkway on Paul Street by Weeks Field)

Cypress Street over Green Line

Herrick Road over Green Line

Langley Road over Green Line

##### Newton Corner

Saint James Street over Massachusetts Turnpike

Washington Street EB over Massachusetts Turnpike

Centre Street NB over Massachusetts Turnpike

Church Street over Massachusetts Turnpike

##### Newton Highlands

Walnut Street over Green Line

Hyde Street over Green Line

Roger Street over Green Line

##### Newtonville

Harvard Street over Massachusetts Turnpike

Walnut Street over Massachusetts Turnpike

Lowell Avenue over Massachusetts Turnpike

##### Nonantum

Lewis Terrace over Massachusetts Turnpike

##### West Newton

Chestnut Street over Massachusetts Turnpike

Highland Street over Massachusetts Turnpike

Washington Street over Massachusetts Turnpike

## Stairs & Pathway Locations (4 )

### Auburndale

Stairs @ Walkway from Commonwealth Avenue to Rand Terrace (Across from Robinhood Street)

### Chestnut Hill

Sidewalks within curbed islands at Comm Ave/College Rd/Carriage Rd (Near BC)

### Newton Centre

Path from Union Street to Beacon Street

Area in front of Green Line Access on Union Street (i.e. Bike Rack)

## MBTA Bus Stop Locations (49)

### *Primary Locations (25)*

### Auburndale

Riverside Station (Shelter)

### Miscellaneous

Walnut Street @ Homer Street

Centre Street @ Clark Street

### Newton Centre

Centre Street @ Beacon Street

Centre Street @ Langley Road

### Newton Highlands

Walnut Street @ Lincoln Street (Shelter)

### Newton Corner

Washington Street @ Massachusetts Turnpike Ramp

Washington Street @ Harvard Street

Washington Street @ Bacon Street (Shelter)

Centre Street @ Park Street (Shelter)

Centre Street @ Mt. Alvernia High School

Centre Street @ Sargeant/Cabot Street

### Newtonville

Washington Street @ Walnut Street (Shelter)

Walnut Street @ Newtonville Commuter Rail Station (Shelter)

Washington Street @ Crafts Street

### Nonantum

Watertown Street @ Chapel Street

Watertown Street @ Pearl Street

Watertown Street @ Adams Street (Shelter)

Washington Street @ Lewis Terrace (Shelter)

Walnut Street @ Watertown Street

### West Newton

Washington Street @ Prospect Street

Washington Street @ Auburn Street

Washington Street @ Chestnut/Watertown Street

Elm Street @ Washington Street  
Washington Street @ Cherry Street

*Secondary Locations (24)*

Auburndale

Lexington Street @ Auburndale Street  
Commonwealth Avenue @ Auburn Street  
Commonwealth Avenue @ Central Street  
Commonwealth Avenue @ Pamella Court

Newton Centre

Parker Street @ Cypress Street  
Cypress Street @ Braeland Street  
Parker Street @ Athelstane Road

Newton Corner

Centre Street @ Church Street  
Tremont Street @ Waverly Street  
Tremont Street @ Park Street  
Washington Street @ Hovey Street  
Washington Street @ Channing Street  
Centre/Galen Street @ Boyd Street  
Tremont Street @ Marlboro Street  
Centre Street @ Pearl Street  
Park Street @ Elmwood Street  
Tremont Street @ Pembroke Street  
Tremont Street @ Playstead  
Centre Street @ Jefferson Street

Newtonville

Walnut Street @ Clyde Street  
Washington Street @ Walker Street

Upper Falls

Oak Street @ Chestnut Street

West Newton

River Street @ Mague Avenue  
Washington Street @ Greenough Street

Newton Public School Bus Stop Locations (41)

*Primary Locations (24)*

Auburndale

River and Lexington (SE & SW corner)  
Woodland & Hancock (SE corner)  
Wolcott St (Inside Island)

Chestnut Hill

Opposite #188 Florence St (Adjacent to the crosswalk)

Lower Falls

Eliot opposite Oak St

Opposite #20 Pettee St (near park)  
Cornell & Grove (SW & NW corner)  
Chestnut & Ellis  
Chestnut & Winter (Opposite of the gas station)

Newton Centre

Gibbs & Sumner (SW corner)  
Ashton & Kenwood opposite island

Newton Corner

Pearl & Jewett St (SW corner)  
Charlesbank opposite Orchard

Nonantum

Jasett & Faxon (park side)  
Hawthorne St near Pellegrini Park

Upper Falls

Chestnut & Oak (SE & SW corners)

Waban

Beacon & Varick  
Beacon & Owaisa  
Beacon & Carleton  
Byfield & Chestnut  
Beethoven & Beacon  
Beacon & Beaconwood  
Chestnut & Amherst  
Gordon & Paulson

*Secondary Locations (17)*

Auburndale

Comm Ave @ Lyons field (in carriage lane)  
Moulton & Grove (opposite island)  
Myrtle & Grove (SE corner)  
Woodland & Hawthorne (either corner)  
Derby & Tolman (SW corner)  
Windemere & Commonwealth (SW corner)  
Commonwealth & Oldham

Newton Centre

Bullough & Berkshire (opposite pond)

Newton Corner

Waverly & Whittemore (either corner)  
Durant & Waverly (southside corner)

Newton Highlands

Forest & Walnut (NW corner opposite Fountain)

Oak Hill

Spiers & Sawmill

#### Waban

Allen opposite Pineridge (near park)  
Randolph & Woodward  
Plymouth & Woodward  
Winslow & Woodward  
Homestead & Woodward

#### Miscellaneous Locations (18)

#### Auburndale

Traffic Island @ Commonwealth Ave & Lexington Street

#### Chestnut Hill

Islands at Commonwealth Avenue & College Road  
HAWK Signal at BC entrance

#### Newton Centre

Traffic Island at Beacon Street & Centre Street  
Traffic Island at Beacon Street & Langley Road  
Traffic Island at Beacon Street & Walnut Street  
HAWK Signal at Parker Street & Athelstane

#### Newton Corner

Island at Centre Street & Exit 17 Turnpike Off-ramp  
Signalized Pedestrian Crossings at Crowne Plaza & Washington Street WB  
Island at Tremont Street & Park Street  
Island at Vernon Street & Park Street

#### Newton Highlands

Seating Area & All Four Corners at Lincoln Street & Walnut Street

#### Newtonville

Island at Walnut Street & Newtonville Avenue  
Sidewalk along Washington Street (Pike Side) from Lowell Ave to Harvard Street

#### West Newton

Seating Area at Watertown Street & Washington Street  
Traffic Signal at Washington Street & Waltham Street (Movie Theatre)  
Traffic Signal at Washington Street & Highland Street  
Traffic Island at Washington Street & Cherry Street

#### *Additional Curb Cut Clearing:*

The following curb cuts and crosswalks located in the village centers and squares will be assessed and cleared as needed.

#### WEST NEWTON SQUARE

WASHINGTON ST@CHESTNUT ST  
WASHINGTON ST@WATERTOWN ST  
WASHINGTON ST @ WALTHAM ST  
WASHINGTON ST @ CHERRY ST INFRONT OF THEATRE  
WASHINGTON ST @ HIGHLAND ST  
WASHINGTON ST @ ELM ST

WASHINGTON ST @ BORDER ST  
WASHINGTON ST @ PERKINS ST INFRONT OF FUNERAL PARLOR

AUBURNDALE SQUARE

LEXINGTON ST @ COMM AVE  
LEXINGTON ST @ MELROSE ST  
COMM AVE @ MELROSE  
LEXINGTON ST @ AUBURN ST  
AUBURN ST @ MELROSE  
AUBURN ST @ ASH  
AUBURN ST @ CENTRAL

NEWTONVILLE

WASHINGTON ST @ HARVARD ST BRIDGE  
WASHINGTON ST @ WALUNT ST  
WALNUT ST @ FOSTER ST  
WASHINGTON ST @ LOWELL AVE BRIDGE  
LOWELL AVE @ AUSTIN ST ( FRONT OF STAR MARKET  
AUSTIN ST @ PHILLIP BRAM WAY  
AUSTIN ST @WALNUT ST  
WALNUT ST @ NEWTONVILLE AVE  
WALNUT ST @ HIGHLAND AVE  
WALNUT ST @ WASHINGTON PK  
WALNUT ST. @ MADISON AVE.

NEWTON HIGHLANDS

WALNUT @ MBTA STATION  
WALNUT @ LINCOLN ST  
LINCOLN ST @HARTFORD  
LINCOLN ST @ WOODWARDST  
LINCOLN ST @ COLUMBUS ST  
LINCOLN ST @ CHESTER ST

NEWTON UPPER FALLS

CHESTNUT ST @ ELLIS  
CHESTNUT ST @ ELLIOT ST  
PETTEE ST @ HIGH ST  
OAK ST @ ELLIOT ST  
OAK ST @ CHESTNUT ST

WABAN

BEACON ST @ CHESTNUT ST  
BEACON ST @COLLINS RD  
BEACON ST @ WINDSOR RD.  
BEACON ST @ WOODWARD ST  
ACROSS FROM STARBUCKS

LOWER FALLS

WASHINGTON ST @ GROVE ST  
WASHINGTON ST @ CONCORD ST

NONANTUM SQUARE

WATERTOWN ST @ WEST ST  
WATERTOWN ST @ CHAPEL ST  
WATERTOWN ST @ COOK ST  
WATERTOWN ST @ FAXON ST



WATERTOWN ST @ ADAMS ST  
WATERTOWN ST @ BRIDGE ST  
WATERTOWN ST @ HAWTHORN ST

NEWTON CORNER SQUARE

CENTRE ST @ PEARL ST  
CENTRE ST @ JEFFERSON ST  
CHANNING ST @ WASHINGTON ST  
CHURCH ST @ WASHINGTON ST  
CENTRE ST @ RICHARDSON ST  
CENTRE ST @ CENTER AVE ( INFRONT OF EATON APOTHECARY)  
WASHINGTON @ HOVEY ST  
WASHINGTON @ BACON ST  
WASHINGTON @ PEABODY ST  
WASHINGTON @ THORTON ST

NEWTON CENTRE

BEACON ST @ CENTRE ST  
LANGLEY RD @ BEACON ST  
UNION ST @ BEACON ST  
UNION ST @ HERRICK RD  
LANGLEY RD @ SUMMER ST  
UNION ST @ LANGLEY RD  
CENTRE ST @ LANGLEY RD  
CENTRE ST @ PLEASANT ST  
CENTRE ST @ PELHAM ST  
CENTRE ST @ CYPRESS ST  
JACKSON ST @ LANGLEY ST  
CYPRESS ST @ JACKSON ST

*Concept of Operations*

Storm Events (3" – 15")

During Storm

Clear all twenty two (22) bridges  
Clear all 25 primary MBTA bus stops

Within 30 Hours After Storm Ends

Clear all stairways & paths identified in snow plan  
Clear all 25 primary public school bus stops & 18 miscellaneous locations

30+ Hours after Storm Ends

Assess remaining 24 secondary MBTA bus stops and clear as required  
Assess remaining 17 secondary public school bus stops and clear as required  
Assess all curb cuts within the village centers and clear as required

Storm Events (15"+)

During Storm

Clear all twenty two (22) bridges  
Clear following the MBTA bus stops

Auburndale

Riverside Station (Shelter)

Highlands

Walnut Street @ Lincoln Street (Shelter)

Newton Corner

Washington Street @ Massachusetts Turnpike Ramp  
Washington Street @ Harvard Street  
Washington Street @ Bacon Street (Shelter)  
Centre Street @ Park Street (Shelter)

Newton Centre

Centre Street @ Beacon Street  
Centre Street @ Langley Road

Miscellaneous

Walnut Street @ Homer Street  
Centre Street @ Clark Street

Newtonville

Washington Street @ Walnut Street (Shelter)  
Walnut Street @ Newtonville Commuter Rail Station (Shelter)

Nonantum

Watertown Street @ Adams Street (Shelter)  
Washington Street @ Lewis Terrace (Shelter)

West Newton

Elm Street @ Washington Street

Within 30 Hours After Storm Ends

Clear all 24 primary public school bus stops  
Clear all stairways & paths identified in snow plan

30+ Hours after Storm Ends

Clear remaining 10 primary MBTA bus stops  
Clear all 18 miscellaneous locations (i.e. traffic islands, seating areas, etc)  
Assess and clear remaining 24 secondary MBTA bus stops  
Assess and clear remaining 17 secondary school bus stops  
Assess all curb cuts in the village centers and clear as required

## **Appendix E: Snow Hauling**

### **Snow Hauling**

Snow hauling will occur at key intersections, village centers, business centers, safe route to school areas, sidewalks abutting city owned property, and transportation nodes upon the Commissioner of Public Works' determination that accumulated snow and ice impedes traffic and pedestrian access. There are many factors that determine whether snow hauling operations are needed. These factors include but are not limited to: snow accumulation from current storm, snow depth from prior storms, predicted snowfall accumulation amounts, and temperatures following the storm. Snow hauling for the City of Newton is accomplished using private contractors. This operation can, under normal condition (12" - 15" snowfall amount) be accomplished using nine pieces of equipment for each village crew. Attention will be given to times in which snow hauling operations occur on a storm by storm basis.

### **Snow Hauling Locations**

1. Newton Centre
2. Washington Street (parking meter area)
3. Newtonville
4. West Newton
5. Nonantum
6. Newton Corner
7. Newton Highlands
8. Auburndale
9. Pettee Square
10. Waban Square
11. Key Intersections (Determined on a storm by storm basis)

### **Hauling Operations**

Snow Hauling operations will be performed overnight at the key locations throughout the City. Typically the snow hauling process is conducted over the period of two to three nights. Factors that may effect efficient operations include location of snow dumps, availability of police details, and equipment failures. Snow removal after a significant storm (16" or greater snowfall amount) extends the time needed to perform hauling in an efficient and effective manner. Parking lot snow removal may require additional nights.

### **Snow Storage Sites**

1. Elliot Street Maintenance Yard (90 Elliot Street)
  2. Rumford Avenue DPW Yard (115 Rumford Avenue)
  3. Forte Park Vehicle Lot (233 California Street) **\*Parks and Recreation site\***
  4. Auburndale Park Vehicle Lot (West Pine Street)
  5. Upper Falls Playground Vehicle Lot (Chestnut Street)
  6. Cold Spring Park Vehicle Lot (Dunklee Street)
- } Used only after the first three are at full capacity

### **Please Note:**

**Every effort will be made to minimize noise and disruption to City residents during hauling operations**

### Appendix F: Available Snow Equipment

Department	6 Wheeler	10 Wheeler	1 Ton/Pickup	Sidewalk Machines	Total
Highway	34	7	32	23	96
Utilities	6	3	9	0	18
Parks & Recreation	0	0	8	0	8
Private Contractors	49	6	32	0	87
<b>Total</b>	<b>89</b>	<b>16</b>	<b>81</b>	<b>23</b>	<b>209</b>

### Appendix G: Facilities and Materials

Location	Salt Capacity	Liquid Magnesium Chloride
Elliot Street Yard	5,000 tons	5,800 gallons
Crafts Street Yard	3,000 tons	5,800 gallons
Totals	8,000 tons	11,600 gallons

## Appendix H: Salt Application Guidelines

The following is the guideline for salt usage. The application rates are based on several factors such as: weather conditions, intensity of the snowfall, materials on hand, and extended forecast. Each event will vary which necessitates each response to vary. These weights represent the amount of salt to be discharged per mile. The settings will allow for a maximum of 500 pounds per lane mile. The “blast” button will override the current setting and deliver a larger amount of salt per mile. However, it will deliver no more than the maximum of 500 pounds per lane mile.

Conditions			Light Snowfall				Heavy Snowfall				Freezing Rain			
Pavement Temp Range and Trend	Pavement surface at time of operation	Recommended Maintenance Action	Solid pounds per lane mile		Pre-wet solid pounds per lane mile	Comment	Solid Pounds per lane mile		Pre-wet Pounds per lane mile	Comment	Solid Pounds per lane mile		Pre-wet Pounds per lane mile	Comment
Above 32°F Steady or rising	Dry, wet, slush or light snow cover	Monitor Road Weather Conditions				1,2				1,2				1,2
Above 32°F Below is Imminent	Dry	Apply Liquid or Pre-wetted solid			50-100				50-100	3				
	Wet, slush or light snow cover	Apply Liquid or Pre-wetted solid	50-100		50-100		200-300		100-200	3	300-400		200-300	
25°F to 32°F Steady	Dry	Apply Liquid or Pre-wetted solid			50-100				100-200	3				
	Wet, slush or light snow cover	Apply Liquid or Pre-wetted solid	100 to 200		50-100	5	300-400		300-400	3,5	300-400		300-400	
20°F to 25°F Steady	Dry	Apply Liquid or Pre-wetted solid			100-200									
	Wet, slush or light snow cover	Apply Liquid or Pre-wetted solid	200-300		100-200	5,6	Max 500		Max 500	5,6	Max 500		Max 500	5,6
15°F to 20°F Steady	Dry	Monitor Road Weather Conditions				4				4				4
	Wet, slush or light snow cover	Apply solid materials	300-400		300-400	5,6	Max 500		Max 500	5,6	Max 500		Max 500	5,6
Below 15°F Steady or Falling	Dry	Monitor Road Weather Conditions				4				4				4
	Wet, slush or light snow cover	Plow as needed apply salt with liquid magnesium Chloride			200-300	5			Max 500	5	Max 500		Max 500	5

### Comments:

1. Monitor temperatures and road pavement conditions for cold or icy spots. Treat problems as necessary.
2. Treat icy spots at 100 pounds per lane mile for solids or 20 gallons per lane mile for liquids, plow as needed.
3. Do not apply liquids to heavy snow accumulation or packed snow.
4. Do not apply chemicals and maintain dry pavement during windy conditions.
5. A mixture of salt and abrasives such as limestone sand may be necessary.
6. Liquid Magnesium Chloride may be used in temperatures less than 25°F.

## Appendix I: Sensible Salting Plan

Effective winter storm maintenance has a direct impact on safety of the roadway users and on the personnel performing the maintenance. Since the use of salt in high concentrations can have a negative impact to the environment and to the streams, lakes, and rivers within Newton the development of Best Management Practices that minimize the use of road salt, will be adhered to during winter operations. Adherence to these guidelines helps reduce the environmental impacts associated with snow and ice control. The following proactive measures will be used as part of the sensible salting plan:

- winter materials will be stored inside salt barns
- pre-determined snow storage sites for hauling operations
- controlled maximum salt application rates at 500 pounds per lane mile
- salt spreader calibration
- pre-wetting solid salt as it is applied to the roadways
- staff training conducted annually and post storm
- continued monitoring of applied salt during and after snow storms

The Sensible Salting Plan contributes to the City's sustainability by reducing the environmental impact caused by snow and ice control. It also resolves the growing need for, but decreasing availability and affordability of rock salt. The plan was developed based on research and benchmarking. The Sensible Salting Plan is divided into three areas:

1. Salt Application
2. Other methods of snow & ice removal
3. Mixing of Salt

### Salt Application

**Action:** Snow and ice control vehicles will be *calibrated* to apply salt at the rate of 500 lbs. per lane mile at maximum. Salt application rates will be set at the lowest pounds per lane mile setting and adjusted as necessary based upon the roadway conditions.

**Action:** Salt will be *pre-wetted* with liquid chemical agents such as liquid salt brine or magnesium chloride. This allows more salt crystals to remain in the driving lanes and reduces bounce and scatter into the medians and berms.

**Action:** Identify low salt usage areas adjacent to the waterways throughout the City. The maximum application rate in the low salt areas will be 200lbs per lane mile.

**Expected Outcome:** Reduction of salt application rates applied to the roadways combined with pre-wetting salt at the spinner should reduce overall salt consumption and lessen the environmental impact from salt usage. This is now an industry standard practice which leads to cost-savings, and reduces the environmental impacts of winter operations.

### Other Methods

**Action:** Investing in and testing an *anti-icing* (brining program) to be more aggressive in application may decrease the amount of salt needed to break the icy bonds that form between the moisture on the road and the freshly fallen snow/ice. Brining will also be added to problem areas such as hills and shaded areas that create special concern for salting after an event has begun. Brining can also be used as a de-icer under the proper conditions.

**Expected Outcome:** Anti-icing delays the bond of moisture to the pavement and reduces the salt application necessary.

**Action:** The *Compu-spread* program and Trasier application will be in use and allow managers to closely monitor the application rates and locations of snow trucks.

**Expected Outcome:** Knowledge of exactly where trucks have passed and the amount of salt applied will help prevent plowing off salt that needs more time to work, or over-applying in areas where salt has already been applied. This program has the potential to save both salt and manpower/equipment costs.

These salt-saving ideas will be incorporated into the current Snow Plan for active use.

### **Mixing of Salt**

**Action:** *Salt can be mixed with sand in some specific cases* at a ratio of 3:2 (salt to sand). While adding abrasives does not add to salt's ability to melt ice and snow, it can offer traction in situations where the amount of salt that would be applied alone would not be beneficial. The addition of abrasives would not be appropriate for all de-icing situations. A salt/sand mix application would be at the discretion of management. Areas or situations when/where de-icing with the abrasive mix might be beneficial include:

1. During particularly icy periods – salt will melt ice and the sand will add traction.
2. In residential areas – salt will melt ice/snow; the sand will give a visual cue and add traction.
3. In parking lots – salt will melt ice/snow and the sand will add traction.
4. When roadway temperature is well below freezing and rising.

#### *Salt/Sand Mix Usage*

Under Management's discretion, the option to mix salt/sand to utilize during snow and ice removal efforts under the following conditions/situation:

1. Used for general de-icing when salt supplies are at or less than 50% of storage capacity. Used for internal customers for de-icing parking lots and sidewalks. When the trigger amount of less than 50% is reached, then the salt/sand mix can be applied to local-through streets post-plowing.

When half the trigger amount (25% capacity) is reached, then the salt/sand mix can be applied to both collector and local-through routes, post-plowing.

Under these rules, a salt/sand mix would not be used until existing storage reaches the specific levels as outlined above.

The use of salt/sand mix will be fully documented, including where it was applied, and what quantities. While there is a great deal of data on appropriate salt/sand mix ratios, the appropriate mix ratio is somewhat trial and error, and will/can be altered as necessary.

Mixed salt can be used both on the roadways and by internal customers who desire to de-ice roads/sidewalks. The type of sand used will be limestone sand, which has larger aggregates, and pulverizes to powder, instead of masonry sand which is gritty, but tends to wash away easier.



## Appendix J: Street Plow Routes

### Street Responsibility Chart

Newton Street Name:	From	To	Street Name Surrounding Community	Name of Surrounding Community
Nonantum Road	#1 Nonantum Road, Newton	Softball Field by 20 Nonantum Road	Nonantum Road	Brighton
Hunnewell Avenue	Ends at 9 Hunnewell Avenue (End of Road--Dead End)	Road of same name restarts at Burton Street	Hunnewell Avenue	Brighton
Washington Street	11 Washington Street, Newton	17 Washington Street, Brighton	Washington Street	Brighton
Tremont Street	147 Tremont Street, Newton	141 Tremont Street, Boston	Tremont Street	Boston
Ricker Terrace	19-21 Ricker Terrace, Newton	20 Ricker Terrace, Boston	Ricker Terrace	Brighton
Nonantum Street	2 Nonantum Street, Newton	4-28 Nonantum Road, Brighton	Nonantum Road	Brighton
Rogers Street	21 Rogers Street, Newton	164 Brayton Road, Brighton	Brayton Road	Brighton
Kenrick Street	225 Kendrick Street, Newton	199 Kendrick Street, Brighton	Kenrick Street	Brighton
Commonwealth Avenue	7 Commonwealth Avenue Newton	2193 Commonwealth Ave., Boston	Commonwealth Avenue	Boston
Beacon Street	McGuinn Hall, 140 Beacon Street Newton	Campion Hall, 140 Beacon Street	Beacon Street	Boston
Acacia Avenue	194 Acacia Avenue, Newton	Beacon Street	Acacia Avenue	Boston
Reservoir Avenue	7 Reservoir Avenue, Newton	Beacon Street	Reservoir Avenue	Boston
Gatehouse Road	96 Gatehouse Road, Newton	Beacon Street	Chestnut Hill Driveway	Boston
Malia Terrace	21 Malia Terrace, Newton	Beacon Street	Reservoir Drive	Boston
Middlesex Road	174 Middlesex Road, Newton	180 Middlesex Road, Brighton	Middlesex Road	Brighton/Brookline Border
Devon Street	51 Middlesex, Road Newton	40 Devon Road, Brookline	Devon Street	Brookline
Dunster Road	41 Middlesex Road, Newton	23-59 Dunster Road	Dunster Road	Brookline
Hammond Street	542 Hammond Street, Newton	543 Hammond Street	Hammond Street	Brookline
Boylston Street	25 Boylston Street, Newton	1195 Boylston Street, Brookline	Boylston Street	Brookline
Hammond Pond Parkway	2 Hammond Pond Parkway	320 Hammond Pond Parkway	Hammond Pond Parkway	Brookline
Florence Street	188 Florence Street	809 Heath Street	Heath Street	Brookline
Craftsland Road	101-103 Craftsland Road, Newton	95 Craftsland Road, Brookline	Craftsland Road	Brookline
Newbrook Circle	1 Newbrook Circle, Newton	End of Road	Newbrook Circle	Brookline

<b>Newton Street Name:</b>	<b>From</b>	<b>To</b>	<b>Street Name Surrounding Community</b>	<b>Name of Surrounding Community</b>
Brookline Street	7 Brookline Street, Newton	849 Newton Street	Newton Street	Brookline
Lagrange Street	188 Lagrange Street, Newton	149 Rangeley Road	Rangeley Road/ Vine Street	Brookline
Nahanton Street	Wells Avenue Intersection	Charles River	Kendrick Street	Needham
Needham Street	320-322 Needham Street, Newton	33 Highland Avenue, Needham	Highland Avenue	Needham
Elliot Street	404-406 Elliot Street, Newton	16 Central Avenue	Central Avenue	Needham
Buttrick Street	37 Buttrick Road, Newton	194 Riverview Avenue	Buttrick Street	Waltham
Rumford Avenue	88 Rumford Avenue, Newton	26 Rumford Avenue	Riverview Avenue	Waltham
Lexington Street	5 Lexington St, Newton	1225-1609 Moody Street, Waltham	Moody Street	Waltham
Adams Avenue	14 Adams Avenue, Newton	Moody Street, Waltham	Adams Avenue	Waltham
Underwood Ave	31-33 Underwood Avenue, Newton	Moody Street, Waltham	Underwood Avenue	Waltham
Derby Street	316-318 Derby Street, Newton	Moody Street, Waltham	Crescent Street	Waltham
Laurel Avenue	17-19 Laurel Avenue, Newton	262 Lowell Street, Waltham	Laurel Avenue	Waltham
Tolman Street	60 Tolman Street, Newton	58 Tolman Street, Waltham	Tolman Street	Waltham
Milo Street	12 Milo Street, Newton	119 Washington Ave	Milo Street	Waltham
Washington Avenue	141-149 Washington Avenue, Newton	119 Washington Avenue	Washington Avenue	Waltham
Dana Road	89-91 Dana Road, Newton	99 Parameter Road	Fuller Street	Waltham
Cambria Road	30-31 Cambria Road, Newton	33 Cambria Road, Waltham	Robbins Street	Waltham
Arbor Road	16 Arbor Road, Newton	24 Arlington Road	Arlington Road	Waltham
Cherry Street	16 Cherry Street, Newton	3 Joyce Road, Waltham	Joyce Road	Waltham
Waltham Street	70 Waltham Street, Newton	1-21 Hamblin Road	High Street	Waltham
Decatur Street	9 Decatur Street, Newton	7 Decatur Street	Decatur Street	Waltham
Boyd Street	102 Boyd Street, Newton	Opposite Side of Street	Boyd Street	Newton/Watertown Border
North Street	206 North Street, Newton	291-299 Calvary Street, Waltham	Farwell Street	Watertown
Bridge Street	3 Bridge Street, Newton	Charles River	Bridge Street	Watertown
California Street	137-139 California Street, Newton	108 California Street, Watertown	California Street	Watertown
Watertown Street	232 Watertown Street, Newton	4 Pond Street, Watertown	Watertown Street	Watertown
Jackson Road	45-47 Jackson Road, Newton	21 Pond Street, Watertown	Jackson Road	Watertown

<b>Newton Street Name:</b>	<b>From</b>	<b>To</b>	<b>Street Name Surrounding Community</b>	<b>Name of Surrounding Community</b>
Jewett Street	108 Jewett Street, Newton	Opposite side of Boyd Street	Jewett Street	Watertown
Fayette Street	3-7 Fayette Street, Newton	To Opposite Side of Boyd Road	Fayette Street	Watertown
Arundel Terrace	48 Arundel Terrace, Newton	To Boyd Street, Watertown	Arundel Terrace	Watertown
Bigelow Terrace	9 Bigelow Terrace, Newton	30 Boyd Street, Watertown	Bigelow Terrace	Watertown
Centre Street	249 Centre Street, Newton	161 Galen Street, Watertown	Galen Street	Watertown
Boylston Street	744 Boylston Street, Newton	Charles River	Worcester Street	Wellesley
Washington Street	2 Washington Street, Newton	722-750 Washington Street	Washington Street	Wellesley
Broadlawn Park	34-36 Broadlawn Park, Newton	9-29 Broadlawn Park	Broadlawn Park	West Roxbury
Bryon Road	45-47 Bryon Road, Newton	Opposite Side of Street	Bryon Road	West Roxbury
Vine Street	308-310 Vine Street, Newton	570 Corey Street	Corey Street	West Roxbury
Dedham Street	1005 Dedham Street, Newton	792-798 Baker Street	Baker Street	West Roxbury
Concord Street	From Pine Grove Avenue, Newton	Charles River	Park Road	Weston
Commonwealth Avenue	2401 Commonwealth Avenue, Newton	Charles River	Commonwealth Avenue	Weston























































































































































































































